Claims

1. A wound healing composition comprising living cells within a support matrix, in which the cells have a wound healing phenotype, and in which the composition is single-layered and has been incubated for up to about 8 days to allow development of the wound healing phenotype.

2. The wound healing composition according to claim 1, in which the composition is incubated for up to about 96 h, for example up to 72 h, 48 h, 25 h or 24 h, preferably for 16 h to 24 h.

3. The wound healing composition according to either of claim 1 or claim 2, in which the composition is incubated at a temperature of about 37°C.

4. The wound healing composition according to any preceding claim, in which the composition is stored after incubation for up to about 40 days, preferably up to 19 days and more preferably about 7 to 14 days or about 7 to 11 days at a temperature of 2°C to 8°C, for example 3°C to 5°C, preferably about 4°C, while retaining the wound healing phenotype.

5. The wound healing composition according to any preceding claim, in which the cells are mammalian, for example human.

6. The wound healing composition according to any preceding claim, in which the cells are substantially fibroblasts, for example 90% to 100%, preferably 95% to 99.5%, and more preferably 97.5% to 99% fibroblasts.

7. The wound healing composition according to claim 6, in which the fibroblasts are dermal fibroblasts, preferably human dermal fibroblasts.

8. The wound healing composition according to any preceding claim, in which the cells substantially exclude keratinocytes.

9. The wound healing composition according to any preceding claim, in which the cells are actively synthetic or able to become actively synthetic rapidly.

10. The wound healing composition according to any preceding claim, in which the cells are not proliferating and/or not senescent.

11. The wound healing composition according to any preceding claim, in which the cells are suspended within the matrix, preferably substantially uniformly within the matrix.

12. The wound healing composition according to any preceding claim, in which the matrix is protein-based, for example having a protein concentration in the range of about 3 to 12 $mg.ml^{-1}$.

13. The wound healing composition according to any preceding claim, in which the matrix is a fibrin matrix.

14. The wound healing composition according to claim 12, in which the fibrin has a concentration in the range of 3 to 12 $mg.ml^{-1}$, for example 7 to 12 $mg.ml^{-1}$ or 3 to 5 $mg.ml^{-1}$.

15. The wound healing composition according to either of claim 13 or claim 14, in which the fibrin matrix is formed by thrombin-mediated polymerisation of fibrinogen.

16. The wound healing composition according to any preceding claim, in which the matrix is non-pyrogenic and/or sterile.

17. The wound healing composition according to any preceding claim, further comprising a protease inhibitor, for example aprotinin and/or tranexamic

acid.

18. The wound healing composition according to any preceding claim, in which the composition is incubated in a protein-rich environment.

19. The wound healing composition according to one preceding claim, in which the composition has a thickness of approximately 8 mm or less, preferably 5 mm or less.

20. The wound healing composition according to any preceding claim, comprising about 450 to 2500 cells per mm^2, for example about 750 to 2000 cells per mm^2, preferably about 900 to 1700 cells per mm^2 such as about 1500 cells per mm^2, or for example about 450 to 550 cells per mm^2 and preferably about 500 cells per mm^2.

21. The wound healing composition according to claim 1, in which the cells are human dermal fibroblasts within a sterile, non-pyrogenic support matrix formed by thrombin-mediated polymerisation of fibrinogen, and in which the composition has been incubated for 16 to 24 h at about 37°C.

22. The wound healing composition according to any preceding claim, in which the matrix is solid or semi-solid.

23. The wound healing composition according to any preceding claim, in which the composition is packaged in a container suitable for transporting the composition (for example, while storing the composition) and/or topically applying the composition to a skin surface.

24. The wound healing composition according to claim 23, in which the container comprises a flexible pouch consisting of two sheets of impermeable flexible material peripherally sealed to provide a means of containment for the composition, the pouch comprising a first internal surface to which the

composition is adherent at a level of adhesion more than between the composition and a second internal surface of the pouch but less than that between the composition and the skin surface, such that in use the pouch may be opened by parting the sheets and the composition conveniently manipulated and directly applied to the skin surface without further requirement for the composition to be touched directly by any other means prior to application.

25. The wound healing composition according to either of claim 23 or claim 24, in which the container is an Oliver (RTM) Products Company "Solvent Resistant Peelable Pouching Material" (Product number Q15/48BF1).

26. The wound healing composition according to any preceding claim, for use as a medicament.

27. The wound healing composition according to any preceding claim, for use as a medicament in the treatment of a skin lesion.

28. The wound healing composition according to either of claim 26 or 27, for topical application to a skin lesion such as a venous ulcer, diabetic ulcer, pressure sore, burn or iatrogenic grating wound.

29. A method of manufacturing a wound healing composition as defined in any of claims 1 to 28, comprising the steps of:
suspending living cells in a solution comprising a polymerisation agent and/or a monomer capable of being polymerised by the polymerisation agent into a matrix;
forming a single-layered support matrix comprising the cells by polymerisation of the monomer with the polymerisation agent; and
incubating the matrix under conditions which allow development of a wound healing phenotype in the cells, thereby forming the wound healing composition.

30. The method according to claim 29, in which the matrix is formed by

adding monomer or polymerisation agent to the solution such that both monomer and polymerisation agent are present in sufficient concentrations to effect polymerisation.

31. A method of manufacturing a wound healing composition as defined in any of claims 1 to 28, comprising the steps of forming a single-layered support matrix by polymerising a polymerisable monomer with a polymerisation agent, casting living cells into the support matrix, and incubating the matrix under conditions which allow development of a wound healing phenotype in the cells, thereby forming the wound healing phenotype.

32. The method according to any of claims 29 to 31, in which the monomer is fibrinogen and the polymerisation agent is thrombin.

33. The method according to any of claim 29 to 32, in which polymerisation occurs in a mould.

34. The method according to any of claims 29 to 33, comprising the further step of packaging the wound healing composition into a container for storing the composition and/or for transporting the composition and/or for topically applying the composition to a skin surface of a patient.

35. Use of living cells as defined in any of claims 1 to 28 in the manufacture of a wound healing composition as defined in any of claims 1 to 28 for the treatment of a skin lesion.

36. A method of treating a patient suffering from a skin lesion comprising topically applying of a wound healing composition as defined in any of claims 1 to 28 to the skin lesion.